

Implementation plan for the UN-GGIM GGRF Resolution

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Key words: Capacity building; Education; Reference frames;

SUMMARY

The United Nations calls for enhanced cooperation on global geodesy. In February 2015 the UN General Assembly adopted the resolution “a global geodetic reference frame for sustainable development”. Based on this resolution the UN Committee of Experts on Global Geospatial Information Management at its sixth session in New York August 2016, endorsed the roadmap for the Global Geodetic Reference Frame (GGRF) and welcomed the development of an implementation plan to ensure that the recommendations contained in the road map are linked to national policy developments in the area of geodesy. This presentation will give a status on the work with developing the implementation plan.

Read more about UN-GGIM GGRF at <http://www.unggrf.org>

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1. THE MANDATE

Through the United Nations initiative on Global Geospatial Information Management (UN-GGIM) geodesy has been lifted from the national and regional perspective and onto the global agenda of sustainable development. Recognizing the vital and increasing importance of the Global Geodetic Reference Frame (GGRF) UN-GGIM has been addressing the challenges within global geodesy in a systematic and dedicated manner. To secure scientific and societal needs UN-GGIM Committee of Experts established a working group (GGRF WG) of interested UN Member States and international organisations, to facilitate the development and sustainability of the GGRF. Outreach and communication has been performed in a strategic, systematic and wholesome manner communicating what geodesy is and why it is important. A UN-resolution for the global geodetic reference frame for sustainable development was formulated, communicated, negotiated, tabled and finally endorsed by the General Assembly. As requested by the resolution a road map addressing key elements relating to the development and sustainability of the GGRF was developed. The road map described the current situation, elaborated on possible measures of success and concluded by recommending necessary actions to undertake in order to secure a sustainable GGRF for the global society.

The road map was presented to the UN-GGIM Committee of Experts in August 2016 at its 6.session attached to the GGRF WG's annual report. To provide the required stability and longer-term planning for the GGRF the report suggested that UN-GGIM develop an implementation plan for the recommendations in the road map. The Committee of Experts endorsed the road map for the global geodetic reference frame as a "principle-based briefing document for national Governments", expressed as an ambition that the road map recommendations are linked to national policy developments and welcomed the development of an implementation plan.

The road map also revealed to the Committee of Experts that an appropriate governance structure is needed to effectively implement the road map and that this governance structure best is owned and driven by UN Member States. Due to this revelation the Committee strengthened the GGRF working group's mandate through elevating the working group to a Sub-Committee on Geodesy (SCoG). The Committee also requested the development of a position paper to define the appropriate governance arrangements for the GGRF, "while balancing the sustainability, investment and data-sharing needs".

2. THE VISION

The vision of the road map implementation plan is "An accurate, sustainable and accessible Global Geodetic Reference Frame to support science and society". The road map has five key issue categories or focus areas as shown in figure 1. The audience for the implementation plan is UN Member States and other interested parties.



Figure 1. GGRF road map key issue categories

3. ORGANISATION OF WORK

The first discussions regarding organizing the work with the implementation plan started in August 2016.

Based on the experiences with developing the road map, the GGRF working group/sub-committee decided to organise the work with the implementation plan into four smaller groups mirroring four of the focus areas in the road map; Geodetic infrastructure; Policy, standard and conventions; Education, training and capacity building; Communication and outreach. One additional focus group was established with the mandate to develop the position paper defining the appropriate governance arrangements. Each group is headed by a lead responsible for organising the group activity to ensure good discussions and proper documentation of the group production, figure 2.

GGRF road map implementation plan

Organisation of work



Figure 2. Organisation of work

The invitation to participate in the focus groups was open and not limited to the formal members of the GGRF WG. The number of focus group members range from 7 in the PSC-group to 16 in the GI-group, and in addition to Member States, IAG and NASA is represented in all groups. The desire is that the implementation actions described in the implementation

plan is deemed as needed by agencies and institutions with engagement in the field of geodesy. For the implementation plan to become a success Members States and international organisations like IAG, collectively must engage in the development of the plan. The plan eventually will list implementation actions that governments can do to improve the focus areas. The actions will demand resources, and unless these actions are widely accepted as necessary and of high priority nationally, they are not likely to be implemented.

It is also a necessity to show the benefits including secondary benefits, of the recommended implementation actions and the investments required. The arguments promoting the actions must be based on reproducible evidence and credible science. Questions like “what is required where” and “what is the impact of not having it” must be answered. Strengths-, Weakness-, Opportunities- and Threats-analysis’ is expected to be a useful tool in this work.

In the work with the implementation plan each focus group should also consider:

1. The road map Measures of success
2. Consultations
3. Timing
4. Reliance on Governance arrangements
5. Cross Reference / dependency on other focus areas
6. Regional distinctions
7. What sensitivities must to take into account

To ensure good communication and cooperation between the focus groups, the plan is to establish a practice where the focus leads meet on a regular basis and a common platform for sharing documents is accessible for all involved. Work has been performed though email correspondence, telecons and a few face to face meetings. As telecon meetings can be a challenge, the groups are working hard to find meeting arenas where they can meet face to face.

4. ACTIVITIES OF THE FOCUS GROUPS

4.1 Geodetic Infrastructure

The GI-group has just recently started its work. The first meeting was in April 2017 alongside the European Geosciences Union General Assembly. This area has a lot of diversity; the needs of large and small countries are not the same and there are differences between the regions. The interpretation of geodetic infrastructure is wide and includes networks of geodetic observatories, data collection and analysis, correlation centres, soft infrastructure and people. A question is how to phrase actions that require funding in a fruitful manner. Beyond doubt communication and outreach is a key to success.

The group has been looking to the other focus groups to evaluate how these groups can contribute to the GI focus area. For example, to implement the road map recommendation GI a) “Member States establish sufficient geodetic infrastructure to allow efficient and accurate access to the GGRF” is heavily reliant on outreach and communication and hence the involvement of the OC-group is necessary. The group has also been discussing potential sensitivities. GGOS Bureau of Products and Standards (BPS) and Bureau of Networks and Observations has offered assistance with making a GAP-analysis of this area.

4.2 Policy, Standards and Conventions

As the name of the group indicates, the focus area of this group is policy, standards and conventions. But it also includes data sharing and the ambition to make geodetic data collected at the observing sites public and freely available.

Up till now there have been no activities in the PSC-group. One of the reasons for this is that the group lead is not yet appointed. The scope of this focus area is large and the work can make use of documents already developed. It is deemed beneficial to the implementation plan if this group has a close connection with ISO. Metadata is an important topic for this focus area. GGOS Bureau of Products and Standards has offered its support to this focus area also by providing a GAP-analysis. It is believed beneficial for the work to consult the International Council for Science.

4.3 Education, Training and Capacity building

Geodetic education and training are not well developed in most countries. This focus area is about strengthening geodetic education, training and capacity building to a level that allows all countries an easy and efficient access to modern geodetic capabilities.

The ETC-group has had good progress in its work. The group has had several telecon meetings with good participation. The group has discussed what will be the ideal situation for the ETC focus area in five years' time. In order to make a gap analysis there is also a need to map the current situation. As the need for ETC may differ regionally, regional consultations must be undertaken. The group has realized that it is important to cooperate with other UN-bodies dealing with the same theme, and has already started consulting relevant stake holders. It is also a relevant option to look at best practices like the ETC-activity of for instance the International Hydrographic Organization (IHO).

4.4 Outreach and Communication

The OC-group has had several telecon meetings and one face to face meeting. This group is handling both the development of the implementation plan for the OC focus area and the overall GGRF WG communication like unggrf.org and @unggrf. The ambition is to build a larger network of communication professionals who all contribute to GGRF social media activities. The idea is that social media representatives at all geodetic agencies work together to promote GGRF related initiatives originating from any of the agencies. Long term communication strategy issues have also been discussed in the group meetings.

4.5 Governance

The challenge of the GOV-group is to propose to the Committee of Experts a governance mechanism for global geodesy that will secure the development and sustainability of the GGRF.

The GOV-group has had productive discussions through email and in one face to face/telecon meeting with very good participation. The assignment of the group is to develop a position paper to define the appropriate governance arrangements for global geodesy, which is slightly different from the assignments of the other focus groups. The ambition is to move from "best effort" to an international government arrangement where UN Member States commit to contribute to the vision of the implementation plan in accordance with their abilities and the societal needs.

At present the plan is to document which attributes of governance that are important, map today's situation and make a GAP-analysis between the two. A part of the activity with documenting the attributes will be to make SWOT-analysis' of the most relevant types of governance mechanisms; An international organization like the IHO; A UN-specialized agency; An organizational structure through memorandums of agreement; A GEO-like entity. As a part of this work it may be needed to do targeted consultations.

5. FUTURE

This summer the GGRF working group's/Sub-Committee of Geodesy's annual report will describe the status of the work with the implementation plan, the position paper, the transition of the GGRF WG to the SCoG and request the Committee of Experts to endorse the Terms of Reference for the SCoG. The first official SCoG meeting is planned adjacent to the UN-GGIM high level forum in Mexico City late November.

While the implementation plan is the current focus, the SCoG will take on a broader agenda in the medium term about how the GGRF is utilized in conjunction with the other foundation spatial datasets. The SCoG will have an ongoing role in providing geodetic expertise to the broader intergovernmental community, especially relating to Sustainable Development Goals but also to hazards, environment, and economic development.

Regarding the implementation plan and the position paper, the plan is to finish this work so that the result can be reported to the Committee of Experts late June 2018. To demonstrate the expected progress in this work the work plan timing for the GOV-group is shown in table 1.

<i>Timing, due</i>	Activity	Comments
<i>Feb 2017</i>	Define Scope of work and how to work	
<i>April 2017</i>	Timeline	
<i>September 2017</i>	Document skeleton/sketch table of content	
<i>June 2017</i>	Research	
<i>July 2017</i>	Describe/sketch four possible governance mechanisms with SWOT	
<i>February 2018</i>	Analyse result of preliminary consultations	Preliminary consultations to a limited audience
<i>April 2018</i>	Conclude and write paper	
<i>May 2018</i>	Finalise consultations and distribute paper for comments	
<i>June 2018</i>	Send draft position paper to UN-GGIM secretariat together with GGRF sub-committee annual report	

Table 1. Work plan, GOV-group

Developing the implementation plan and the position paper is only the beginning of the process of making "an accurate, sustainable and accessible Global Geodetic Reference Frame

to support science and society”. The appropriate governance arrangements must most likely be in place before most of the objectives of the road map will commence to be implemented. Experience from other organisations show that a time span from five to ten years of negotiations and hard work is to be expected before a governance structure may be in place.

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BIOGRAPHICAL NOTES

Laila Loevhoeiden: Educated thesis engineer in petroleum science with a master in society, science and technology. Diverse work experience, later years as manager at the Geodetic Division of the Norwegian Mapping Authority. Presently co-chairing the United Nations Information Management Committee of Experts Working Group on the Global Geodetic Reference Frame/Sub-Committee on Geodesy.

Gary Johnston:

Gary Johnston is the Head of the Geodesy and Siesmic Monitoring branch at Geoscience Australia. He is currently the chair of the International GNSS Service Governing Board and Co-chair of UN GGIM working group on the Global Geodetic Reference Frame/Sub-Committee on Geodesy.

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